

Faculty of Education

Lesson Plan Template

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| **Subject / Course:** Mathematics | **TC Name:** Nathan Chow | |
| **Grade Level:** Grade 8 | **Date:** October 14th, 2010 | |
| **Topic:** Number Sense – Rates | **Time of Class:** 55 minutes | |
| **AT Name:** Chris Hajdu | **Room # / Location:** | |
| **1. Curriculum Expectation(s) and Goal(s) for the Lesson** | |  |
| 1. **Expectations**:  |  | | --- | | - solve problems involving rates | | | |
| 1. **Goal(s) for the lesson:**  |  | | --- | | The students will create two or three word problems which, deal with rates.  Students will be able to solve at least one of another student’s problems. | | | |
| **2. Preassessment and Accommodations/Modifications** | | |
| |  |  | | --- | --- | | **Preassessment:** | **Accommodation/Modification:** | | **Academic Needs:** *Student finished early*  **Academic Needs:** *Student having difficulties*  **Behavioural Needs:** *Students who are easily distracted*  **Social Needs:** *Students who do not often participate*  **Physical Needs:** *C.R. has hearing difficulties* | This is not likely to occur too much, as students are continuously working in groups. It is up to the Teacher to gauge where the class is at, and decide if the lesson should move on. However, if a group is continuously finishing early they can be placed with another group who are having difficulties.  This is also not likely to occur too much, as students have safety nets in groups. Teacher will assist individual groups if they are having continuous difficulty. Also, see above accommodation.  This lesson caters to short attention spans, as no one part is longer than 6 minutes.  Students always have the right to pass.  Teacher will wear an FM system at all times, and ensure that C.R. is receiving instruction. | | | |

**3. Learning Environment**

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| **Classroom Setup:**   * Desks will be setup in pods (groups of four), allowing ample space for the Teacher to mill around   **Pair Organization:**   * Students will share will the person next to them in their groups of 4 * Teacher will distribute students, if they’re in an odd number distribution * Discussion may leak within the pod, to the other pair in the group of 4, which is completely fine   **Group Organization:**   * Students will be given ample time to find a person who has the same rate of travel as them * This is a rate question in and of itself |

**4. The Overview (Agenda) for your lesson:**

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| 1. Grocery Lines *(10 min)* 2. Better Deal? *(11 min)* 3. The Internet *(5 min)* 4. Pizza! *(14 min)* 5. Rate Creation *(15 min)* |

**5. Resources and Materials for your class**

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| ***Lesson Materials:***   * This lesson requires no special materials   ***Teacher Resources:***   * Chalk   ***Student Resources:***   * 1 or 2 sheets of paper * A writing utensil   ***Websites and Resources:***   * Activities adapted from *Engaging All by Creating High School Learning Communities* (Gibbs, 2008) * Grocery Store Line up idea blatantly stolen from [Dan Meyer](http://blog.mrmeyer.com/?p=4646) (watch [his TED Talk!](http://www.ted.com/talks/dan_meyer_math_curriculum_makeover.html)) |

**6. Content, Teaching Strategies, for Lesson**

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| ***Time*** | ***Teaching or***  ***Assessment Strategy*** | ***Detailed Description*** |
| ***10***  ***total*** | *Minds On!*  ***(3 min)***  *Think-Pair-Share*  ***(4 min)***  *Mini-consolidation*  ***(3 min)*** | ***Grocerey Store Minds On!:***  *Teacher will draw a picture of a grocery store line up between the express checkout and the regular. Students will be asked for the numbers to fill it in.*   * *What’s the ratio of items? Ratio of carts?* * *What would be faster?* * *Other factors?*   *Students will discuss with their partners for 2 minutes and then share their ideas with the class.*  *Teacher will take estimates and guesses from the pairs. Teacher should focus on the following questions:*   * *What was important?* * *But this has more carts and fewer items?* * *Difference between Ratios and Rates.* * *What are you comparing here?* * *Unit Rates* |
| ***11***  ***total*** | *Instruction*  ***(5 min)***  *Think-Pair-Share*  ***(6 min)*** | ***Grocery Store Prices:***  *Teacher will ask the class for a type of thing they would buy at the grocery store. Get information about the item:*   * *How much will it cost?* * *How much does it weigh?*   *Teacher will create a comparable item (perhaps bulk) which students will need to compare unit price to determine which is more cost effective.*  *Students will discuss with their partners for 3 minutes and then share their ideas with the class.* |
| ***5***  ***total*** | *Instruction*  ***(5 min)*** | ***YouTube and Dialup:***  *Teacher will talk about the loading bar on a YouTube video. How much is watched vs. How much is loaded? Total Time Loaded vs. Total Time of Video?*  *Segue into discussion about bandwidth.* |
| ***6***  ***total*** | *Group Rates*  ***(6 min)*** | ***Group Rates Organization:***  *Students will be asked to find the student who had the closest rate to them in terms of the trip from home to school. This will be their pair for the next problem.* |
| ***8 total*** | *Class-wide Fermi Problem*  ***(8 min)*** | ***Pizza Application:***  *If this classroom was filled with Pizza, how long would it take us to eat it? How much would the pizza cost?*  *Consider:*   * *How many pizzas would fill this room? How do you know?* * *How fast would we eat? Unit rate?* * *How much would that cost?* |
| ***11 total*** | *Summary*  ***(2 min)***  *Question Creation*  ***(5 min)***  *Question Answering*  ***(4 min)*** | ***Consolidation:***  *Teacher will summarize the concept of solving rates being a comparison between two different units, e.g. distance and time, quantity and price, etc...*    *Students will be asked to go back to their desks and write two or three word problems which involve rates.*  *Students will share their problems with their partners, who will then try to solve the questions. If the partner is having a lot of difficulty, the student who created the problem can help.* |
| ***4 total*** | *Instruction*  ***(4 min)*** | ***Home Acitivity:***  *Teacher will assign two sets of questions from the textbook. One set will have more than one basic question, and the other will be one harder question. Students will be asked to predict which set will take longer. Teacher will ask the students to consider the following:*   * *Ratio of problems* * *Rate of solving This type of question vs. That type of question*   *For afterwards, “Do you think you chose the right set?” “Test it out!”* |

**7. Reflections: To be completed after you have taught the lesson.**

**a) Effectiveness of your lesson***.*

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| **What was effective/ineffective about your lesson** | **How do you know?** | **What steps will you take to improve?** |
| ***Effective:***  *Student engagement* | *Tons of discussion about the grocery store problem, lots of good opportunity to introduce topics and concepts* | *I have to introduce more examples like this* |
| ***Ineffective:***  *Time management* | *Had to scrap one of the activities* | *Perhaps the lesson plan was too long, or maybe not. The grocery store discussion went long, so I cut something (probably okay?)* |

**b) Effectiveness as a Teacher:**

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| **What was effective/ineffective about you as a teacher?** | **How do you know?** | **What steps will you take to improve?** |
| ***Ineffective:***  *Some teaching was over their heads* | *I saw some blank looks, and was moving through material too fast* | *I have to see things from the student’s perspective... math is one of my strong points so this is a challenge* |
| ***Ineffective / Effective:***  *Better classroom management* | *Improvement over my first lesson, but still needs to improve* | *Continue to add management skills to my teaching style* |
| ***Ineffective:***  *Assessment* | *I didn’t collect the student questions, since I ran out of time* | *Better time management* |

**8. AT Feedback**

- make sure students are watching as student works on board

- good math discussion

- good asking a variety of people

- good real life experiences

- with math, must show how to calculate

- have students work out examples and then discuss

- make sure all are listing if giving answers, not talking

- good waiting for questions before moving on